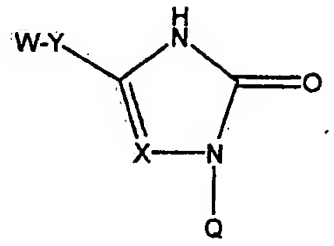
Claims (clean version encompassing amendments)

What is claimed is:

1. A compound having the structure



where X is CH or N,

Y is –CO–, –CONW–, –O–, –S–, –SO–, –SO_2–, –NWCO–, –NW–, or –OCO–,

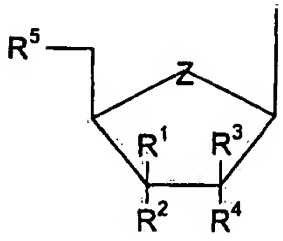
W is the same or different at different places in the molecule and each is H or alkyl or aryl or Rp or –Ln–Rp,

Ln is a linker group,

Rp is a reporter moiety, and

Q is a sugar or a sugar analogue or a nucleic acid backbone or backbone analogue, provided that at least one reporter moiety Rp is present.

2. The compound as claimed in claim 1, wherein Q is



where Z is O, S, Se, SO, NW or CH_2,

R^1, R^2, R^3 and R^4 are the same or different and each is H,

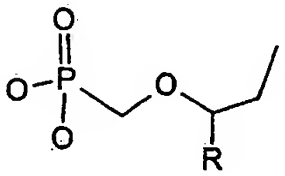
OH, F, NH_2, N_3, O-hydrocarbyl or Rp or –Ln–Rp,

R^5 is OH, SH or NH_2 or mono–, di– or tri-phosphate or –thiophosphate, or corresponding boranophosphate,

or one of R^2 and R^5 is a phosphoramidite or other group for incorporation in a polynucleotide chain, or a reporter moiety,

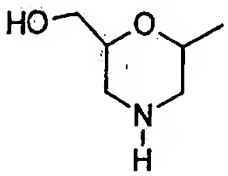
or Q consists of one of the following modified sugar structures

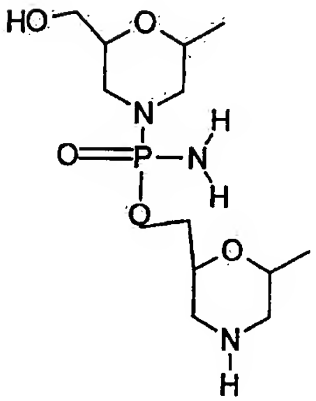
Acyclic Sugars



R= CH_3,CH_2OH, H,

Morpholino Backbone





3. (once amended) The compound of claim 1, wherein a reporter moiety Rp is not present in Q.

4. (once amended) The compound of claim 1, wherein the linker group Ln is a chain of 1 to 60 carbon, nitrogen, oxygen, phosphorus and/or sulphur atoms, rigid or flexible, saturated or unsaturated.

5. (once amended) The compound of claim 1, wherein the reporter moiety Rp is a signal moiety or a solid surface or a reactive group by means of which a signal moiety or a solid surface may be linked to the nucleoside or nucleotide analogue.

6. The compound of claim 5, wherein the reactive group is NH_2, OH, COOH, $CONH_2$, ONH_2, SH, or a thiophosphate or a hydrazine or a hydrazide, or an active ester or aldehyde or maleimide.

7. (once amended) A nucleoside analogue comprising a compound according to claim 1.

8. (once amended) A nucleotide analogue comprising a compound according to claim 2.

9. The nucleotide analogue of claim 8, wherein R^5 is triphosphate.

10. A polynucleotide chain comprising a nucleoside analogue of claim 7.

11. (once amended) The polynucleotide chain according to claim 10 wherein Q is a nucleic acid backbone consisting of sugar-phosphate repeats or modified sugar-phosphate repeats (LNA), or a backbone analogue such as peptide or polyamide nucleic acid (PNA).

12. (once amended) A chain extension method which comprises reacting the polynucleotide chain according to claim 10 with a primer in the presence of a polymerase.

13. A chain extension method according to claim 12 in which the primer is chosen to hybrisise with a section of the polynucleotide chain not including the nucleoside analogue.

14. (once amended) A method of detecting a nucleic acid which contains a compound according to claim 1, which method comprises the step of detecting the presence of the reporter moiety Rp.

15. (once amended) The method as claimed in claim 14 in which the reporter moiety is a radioisotope, a stable isotope, a signal moiety or a specific chemical moiety suitable for detecting by spectroscopy, especially mass spectroscopy.